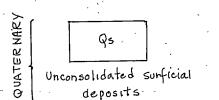
CORRELATION OF MAP UNITS



South of Denali fault zone

North of Denali fault zone

INTRUSIVE ROCKS METAMORPHIC ROCKS INTRUSIVE ROCKS SEDIMENTARY AND VOLCANIC ROCKS Wrangell Lava QTwa, andesite and dacite QTwr, rhyolite, rhyodacite and basalt QTq Gravel ANGULAR UNCONFORMITY Rhyolite dike Undifferentiated intrusive rocks Sandstone and conglomerate ANGULAR UNCONFORMITY Kg Kd Kad, granodiorite Kpam, Porphyritic quartz Kc g, granodiorite, quartz monzonite and monzonite and diorite Chisana Formation granodiorite Kd, diorite, syenodiorite and hornblendite JKa JEd JES Argillite and graywacke DISCONFORMITY Diorite complex JRd, diorite and diorite RΙ P3 49 gneiss JRc, cataclasite ULTRAMAFIC AND ASSOCIATED ROCKS Limestone Gneiss and metagranitic URs, syenite queiss DISCONFORMITY (?) rocks M3P39: ₹n Mza M3 P3 P Gabbro Nikolai Greenstone Anorthosite and DISCONFORMITY (?) Phyllite and schist M3 P3 U TR Pa Serpentinized peridotite Argillite and limestone UNCONFORMITY (?) PIPV Volcanic and Quartz monzonite volcaniclastic rocks and granodiorite top, metasedimentary Pai, Metalaneous rocks Pal: limestone pamu, undifferentiated meta morphic rocks

Contact, known, approximate and inferred

Fault, dotted where concealed, heavy where evidence of Quaternary movement

Thrust fault, dotted where concealed. Sawteeth on upper plate

25___

Strike and dip of beds and flows

Horizontal Deds and Flows

Vertical beds and flows

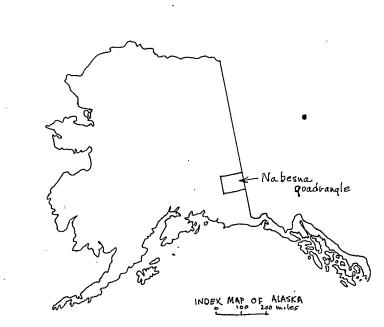
To Overturned beds and flows

Strike and dip of foliation

 \subset

Volcanic vent, chiefly small, young andesite - davite volcanoes and andesite cinder cones

Mine a prospect showing principal mineral commodity



North of Denali fault zone

facies metamorphism.

DESCRIPTION OF MAP UNITS

- Qs UNCONSOLDIATED SURFICIAL DEPOSITS -- Undifferentiated alluvial, glacial, fluvioglacial, rock glacier, colluvial and eolian deposits. Only more extensive areas covered by surficial deposits show. In northeast part of quadrangle bedrock is generally covered by a mantle of residual soil.
- South of Denali fault zone
- QTwa WRANGELL LAVA; ANDESITE AND DACITE -- Brown, gray and reddish-gray flows of andesite, basaltic andesite and dacite with interlayered lapilli tuff beds and vent debris. Flows are as much as 100 feet thick and commonly exhibit columnar jointing. Vesicles locally filled with chalcedony and zeolite minerals.
- QTWr WRANGELL LAVA; RHYOLITE, RHYODACITE AND BASALT -- Light-colored massive rhyolite and rhyodacite flows and domes and related ash flow deposits, pumice air fall deposits and lahars. Glacial deposits, chiefly till, are locally interlayered with the volcanic deposits. The silicic volcanics overlie massive dark gray basalt flows in the Jack Creek area (T. 8 N., R. 13 E.).
- QTg GRAVEL -- Weakly consolidated fluvioglacial deposits. Shown only in the Bonanza area (T. 4 N., R. 19 E.).
- Ks SANDSTONE AND CONGLOMERATE -- Thin-bedded to massive drabbrown to greenish-brown continental deposits of sandstone and conglomerate with subordinate siltstone, argillite and grit.—Generally contains abundant lignitized wood and other carbonaceous debris.
- KC CHISANA FORMATION -- Chiefly dark-green massive volcanic fragmental rocks with interlayered basalt and andesite flows, lapilli tuffs and volcaniclastics. The volcaniclastics range from mudstone to conglomerate, are generally thin-bedded and locally contain abundant carbonaceous debris.
- JKa ARGILLITE AND GRAYWACKE -- Dark-gray to greenish-gray marine deposits consisting chiefly of argillite and graded beds of argillite-siltstone-graywacke with interbedded massive lenses of extraformational conglomerate, and conglomeratic graywacke and minor calcareous siltstone and bioclastic limestone.

 Graded beds are exceptionally well developed.

- TR 1 LIMESTONE -- Light-gray massive limestone and interbedded thin limestone and dark shale. Lenses and nodules of dark-gray chert locally abundant. Thin-bedded limestone-shale overlies massive limestone where both units are present. The pelecypod Monotis occurs in shale interbeds of limestone-shale unit.
- R n NIKOLAI GREENSTONE -- Brown, green and reddish-brown subaerial amygdaloidal basalt flows, a few inches to more than 30 feet thick, with occasional thin interbeds of maroon volcaniclastics. Base of formation locally marked by massive conglomerate. Amygdules consist of quartz, calcite, chlorite, epidote, pumpellyite, prehnite, zeolite minerals and occasionally native copper. In the upper Slana River valley (T 13 N., R. 9 and 10 E.) basalt contains abundant clasts of Permian limestone (Repa) and lenses of limestone-basalt conglomerate and limestone conglomerate. Between the Nabesna and Chisana Glaciers the map unit may include flows of Wrangell Lava (QTwa).
- ARGILLITE AND LIMESTONE -- Thin-bedded, dark-gray marine argillite with interbedded gray bioclastic limestone, calcareous siltstone and minor conglomerate. Massive volcanic conglomerate especially abundant in the Slana area (T. 11 N., R. 3 E.). Base of the unit generally marked by conspicuous lens of light gray bioclastic limestone as much as 1000 feet thick. Upper part of unit locally includes thin and discontinuous beds of carbonaceous shale and chert containing the Triassic pelecypod Daonella. Gabbro sills of possible Triassic age locally very abundant
- PPv VOLCANIC AND VOLCANICLASTIC ROCKS -- Chiefly dark-gray-green massive volcanic flows, volcanic fragmental rocks and tuffs interbedded with volcaniclastic rocks and minor inpure limestone. The volcaniclastic rocks range from argillite to grit and are locally graded.
- PORPHYRY -- A variety of hornblende and hornblende-feldspar porphyries, andesite to dacite in composition, occurring as dikes, sills and small stocks. Only larger bodies shown. In the Cross Creek area (T. 3 and 4 N., R. 15 and 16 E.) the porphyry bodies contain abundant mega-inclusions of argillite and limestone (R Pa).

- TKi UNDIFFERENTIATED INTRUSIVE ROCKS -- Small stocks of dark fine-to-medium-grained hornblende diorite, hornblende-augite diorite and hornblendite. Generally porphyritic with phenocrysts of hornblende and augite. In part probably hypabyssal equivalent of plutonic rocks (Kg, Kd).
- Kg GRANODIORITE, QUARTZ MONZONITE AND DIORITE -- Hornblende- and biotite-bearing granodiorite, quartz monzonite, and diorite with subordinate trondhjemite, quartz diorite and gabbro in large stocks and complex batholiths. Rocks are medium to coarse grained, subhedral granular and nonfoliate. Inclusions of hornfelsed country rock abundant.
- Kd DIORITE, SYENODIORITE AND HORNBLENDITE -- Chiefly dark hornblende-bearing diorite and syenodiorite in large stocks. Hornblendite generally restricted to border zones of stocks. Rocks are medium to coarse grained, subhedral granular and nonfoliate.
- Jæ d DIORITE COMPLEX; DIORITE AND DIORITE GNEISS -- Banded hornblende diorite gneiss, amphibolite and hypersthene-hornblende diorite gneiss gradational into hornblende diorite. Gneissic rocks are fine to coarse grained with xenoblastic texture; nonfoliate rocks are medium to coarse grained with subhedral to anhedral granular texture.
- JR c DIORITE COMPLEX; CATACLASITE -- Chiefly quartz-feldsparbiotite schist and quartz-feldspar-amphibole schist. Strong deformational fabric of porphyroblastic feldspar anc occasionally garnet in a fine-grained granoblastic matrix of quartz with thin bands of biotite and amphibole.
- JR s DIORITE COMPLEX; SYENITE GNEISS -- Pink, hornblende-biotite syenite and monzonite gneiss, generally interlayered with diorite gneiss. Fine to coarse grained with zenoblastic texture. Small pegmatitic syenite dikes, locally corundumbearing, cut the gneiss.
- Mza ANORTHOSITE AND GABBRO -- Coarse-grained bytownite anorthosite with gabbro and gabbro-pegmatite.
- q QUARTZ MONZONITE -- Pink medium-grained-quartz monzonite with abundant septa of dark green hornfelsed volcanic rock.
- PRELIMINARY BEDROCK GEOLOGIC MAP OF THE NABESNA QUADRANGLE, ALASKA

- Pzmu UNDIFFERENTIATED METAMORPHIC ROCKS -- Shown where geologic data are lacking but probably either Pzp or Pzi.
 - data are lacking but probably either Pzp or Pzi.

 CzMzr RHYOLITE DIKE -- Large, light-colored fine-grained dikes

Pzyg GNEISS AND METAGRANITIC ROCKS -- Banded granite gneiss, quartz

MzPzp PHYLLITE AND SCHIST -- Chiefly interlayered dark gray phyllite

crystalloblastic biotite granodiorite and granite.

diorite gneiss and amphibolite gradational into light-colored

and gray quartz mica schist within Denali fault zone (T. 5 N.,

R. 22 and 23 E.). Rocks are similar to those north of the Denali

fault zone (Pzp) but may also represent metamorphosed argillite

• (JKa) of Jurassic-Cretaceous age south of the Denali fault zone.

METASEDIMENTARY ROCKS -- Interlayered dark-gray phyllite, brown

METAIGNEOUS ROCKS -- Massive, dark green greenstone, meta-

LIMESTONE -- Massive gray recrystallized limestone locally

containing recognizable Devonian corals and stromatoporoids.

diorite and metagabbro with interbedded phyllite.

metaconglomerate, light-gray micaceous quartzite and quartz mica

schist with subordinate marble, and chlorite schist. Greenschist

- observed only on Wellesley Mountain (T. 7 and 8 N., R. 22 E.).
- GRANODIORITE -- Hornblende- and biotite-bearing granodiorite and minor hornblende diorite. Rocks are medium-grained with subhedral granular texture and nonfoliate.
- Kpqm PORPHYRITIC QUARTZ MONZONITE AND GRANODIORITE -- Porphyritic and locally foliated hornblende-biotite quartz monzonite, granodiorite and diorite with large phenocrysts of potassium feldspar in a coarse-grained subhedral granular groundmass.
- MzPzg GABBRO Dark gabbro and mafic hornblende diorite associated with ultramafic rocks in the Carden Hills.
- MzPzu SERPENTINIZED PERIDOTITE -- Tabular bodies of ultramafic rock consisting chiefly of serpentinized peridotite with minor serpentinized dunite and pyroxenite. The Mentasta Pass body (T. 13 N., R. 9, 10, 11 E.) is associated with silica-carbonate rock and locally contains inclusions of rodingite and nephrite.

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey standards and nomenclature.

D. H. RICHTER

1973